

AN INVESTIGATION OF THE ELEMENTS OF TOTAL QUALITY MANAGEMENT
AND THEIR APPLICATION AS MANAGEMENT TOOLS FOR
GRESHAM FIRE & EMERGENCY SERVICES

Executive Development

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ABSTRACT

The management of Gresham Fire & Emergency Services (GFES) was based on a traditional management style that was hierarchical and rigid, with no consideration of customer service. The problem was that GFES was utilizing an outdated management style that was not responsive to the needs of its customers or the goals of the City Council.

The purpose of this research was to evaluate and determine what elements of the Total Quality Management (TQM) process were applicable to the management of GFES. The researcher used the evaluative research method to answer the following questions. 1. What are the elements of TQM? 2. What was the fire service experience with TQM? 3. What was the current management/organizational culture of GFES? 4. Were elements of TQM already in place in GFES? 5. Of the identified elements of TQM, which elements would be useful for the management of GFES?

To answer the research questions, the researcher conducted a literature review that was with a focus on the elements of TQM and the latest fire service experience with TQM. In addition, the researcher utilized the results of two surveys.

The researcher determined that TQM is a team management process that utilizes the talents and capabilities of both labor and management to continually improve quality. The researcher further identified a number of additional TQM elements that could be implemented or strengthened as GFES management tools.

In conclusion, the researcher recommended the following actions: 1. Increase participatory management by including personnel from all levels of the organization in the decision making process. 2. Adopt a customer service focus based on the model described in Chief Alan Brunacini's book *Essentials of Fire Department Customer Service* (1996). 3. Add a core skills and competencies element to the current training program and begin to focus on personal development. 4. Create a department wide committee to research how to strengthen and improve the employee recognition program. 5. Create a process to measure internal and external customer satisfaction. 6. Perform additional research on implementing a full TQM program.

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INTRODUCTION

The management of Gresham Fire & Emergency Services (GFES) is based on a traditional management style that is hierarchical and rigid. The management focus is on solving day-to-day problems and most decisions are made in the top levels of the organization. In addition, the current management style is not responsive to the Gresham City Council Goals.

Gresham City Council Goal Number Two is to “always provide quality customer service” (Gresham City Council, 1998), but GFES has made no effort to identify its customers or determine from those customers how it is performing.

The problem is that GFES is utilizing an outdated management style that is not responsive to the needs of its customers or the goals of the City Council.

During the July 2000 Executive Development course at the National Fire Academy (NFA) in Emmitsburg, Maryland, a customer driven management methodology known as Total Quality Management was introduced and studied. The purpose of this research is to evaluate and determine what elements of the Total Quality Management (TQM) process are applicable to the management of GFES.

This researcher will use the evaluative research method to investigate and determine the applicability of elements of TQM and seek answers to the following questions:

1. What are the elements of TQM?
2. What is the fire service experience with TQM?
3. What is the current management/organizational culture of GFES?
4. Are elements of TQM already in place in GFES?
5. Of the identified elements of TQM, which elements would be useful for the management of GFES?

BACKGROUND AND SIGNIFICANCE

Gresham Fire and Emergency Services is located in the Northwest section of Oregon and serves 65 square miles of East Multnomah County on the eastern border of the City of Portland.

In 1973, after 63 years as a volunteer fire department, GFES was restructured to a combination paid and volunteer system with 24 career and 40 volunteer personnel staffing two fire stations. Over the past 27 years, the service population of GFES has grown from 35,000 to 120,000. GFES now staffs seven stations with 105 career personnel and 15 volunteers with a total budget for fiscal year 2000/2001 of \$11,256,000.

Since September of 1998, GFES has had six Fire Chiefs. The latest interim Fire Chief started in June of 2000 and a permanent chief was recently hired. Previous management over the past 15 years held to a tight traditional management philosophy. The department has been dominated by a traditional pyramid-like management style with some progress made toward a more humanistic style.

Traditional management has rigid lines of authority and responsibility and is considered pyramid-like, much like the traditional organizational chart (Appendix A). This form of management served the fire service well in the past and is still the primary management methodology for incident management. However, it is widely recognized that the day-to-day management of a modern organization should be flatter and participatory (Schmidt, 1993).

Management decision-making at GFES is currently based on crisis management and not on its mission, goals, or priorities. Out-of-date mission and goal statements compound this problem. In addition, customer research and feedback are nonexistent. There is no system in place to determine the quality of its customer service.

In spite of the utilization of an outdated management style, an annual City Services Survey rates GFES as the city department with the highest approval rating, with 90% of the respondents giving GFES a “Good” or “Very Good” rating.

However, respondents to the Survey that have utilized GFES’ service indicated that that service had slipped from 94% to a 91% approval rating. In addition, the rating of “Very Bad” had increased from 1% to 3%, indicating an erosion of service quality had taken place (B. Kraft, City of Gresham, Citizen Survey Report, August, 2000).

In a series of interviews with Gresham City Councilor Jack Horner (personal

communication, June 26, & December 16, 2000) and City Manager Bonnie Kraft (personal communication, July 13, & December 4, 2000), the researcher has determined that TQM is a valued management process and is seen as a desirable process for managing GFES.

The City of Gresham is facing significant budget challenges in the future. Revenue is not growing at the same rate as the cost of the services delivered (P. Sandstrom, City of Gresham memorandum regarding fiscal year 2001-02 revenue forecast, December, 2000). Consequently, there has been a gradual erosion of the GFES budget and the loss of two positions in the past two annual budget deliberations.

The research and study of TQM for this project is directly related to the course of study in Executive Development at the NFA. The July 24, 2000, Executive Development class of the NFA studied Service Quality/Marketing and examined the elements of Total Quality Management. Also examined was The Malcolm Baldrige National Quality Award and how award winning government agencies are managed.

LITERATURE REVIEW

Total Quality Management

TQM can be traced to the work of Dr. W. Edwards Deming and Dr. Joseph M. Juran during the rebuilding of the Japanese economy in the aftermath of World War II. Since American businesses discovered TQM in the 1980s, it has been successfully implemented in a number of well-known corporations in the United States such as XEROXTM, Federal Express, and IBM (Capezio, 1995).

TQM can be defined as “a cooperative form of doing business that relies on the talents and capabilities of both labor and management to continually improve quality and productivity using teams. Embodied in this definition are the three ingredients necessary for TQM to flourish in any company: (1) participative management, (2) continuous process improvement, (3) the use of teams” (Jablonski, 1991, p. 4). Also defined are 6 basic principles of TQM: customer focus, focus on the process as well as the results, prevention versus inspection, mobilizing the

workforce, fact-based decision making, and feedback (Jablonski, 1991).

The Commission on Fire Accreditation International lists nine points in their manual, *Exceeding Customer Expectations: Quality Concepts for the Fire Service*, as the primary elements of TQM for the fire service: training, consistency of purpose as a long term commitment, focus on progress, quantitative methods, continuous improvements, supplier partnership, customer focus, leadership, and total personnel involvement/teamwork (Bruegman, 1999).

The utilization of TQM in government has been reduced to the three basic concepts of working with suppliers, continuous process improvement, and communication with customers. Suppliers provide the material to which the organization adds value and delivers to the customer. Continuous process improvement constantly analyzes work processes to improve the organization. Communication with the customer is essential in determining their needs and wants (Cohen, 1993).

According to Arthur Tenner, TQM is a set of three fundamental quality principles that support the objective of continuous improvement. These principles are customer focus, process improvement, and total involvement by all employees. Supporting the quality principles are the elements of leadership by example, education and training to raise skill and knowledge, open and honest communications, reward and recognition for teamwork, a supportive environment by senior managers, and the use of data for decision-making (Tenner, 1992).

In addition to the above, Warren Schmidt identifies five key TQM competencies as trust, teamwork, management by fact, employee recognition, and creating a continuously improving organization. An organization that is managed by TQM is flatter and more flexible. Employees are empowered to make decisions and work in cross-functional teams with supervisors. Bosses are seen as coaches and facilitators and employees are seen as a valuable asset. Customers define quality and the organization develops measures to meet the customer's expectations. Decisions are made based on fact. Schmidt also makes a comparison of traditional and TQM organizations (Table 1) (Schmidt, 1993).

Table 1. Comparison of Traditional and TQM Organizations.

Traditional	TQM
The organizational structure is hierarchical and has rigid lines of authority and responsibility.	The organizational structure becomes flatter, more flexible, and less hierarchical.
The focus is on maintaining the status quo (“If it ain’t broke, don’t fix it”).	The focus shifts to continuous improvement in systems and processes (continue to improve it even if it isn’t broken).
Workers perceive supervisors as bosses or cops.	Workers perceive supervisors as coaches and facilitators. The manager is seen as a leader.
Supervisor-subordinate relationships are characterized by dependency, fear, and control.	Supervisor-subordinate relationships shift to interdependency, trust, and mutual commitment.
The focus of employee efforts is on individual effort; workers view themselves as competitors.	The focus of employee efforts shifts to team effort; workers see themselves as teammates.
Management perceives labor and training as costs.	Management perceives labor as an asset and training as an investment.

Management determines what quality is and whether it is being provided.	The organization asks customers to define quality and develops measures to determine if customers' requirements are met.
The primary basis for decisions is "gut feeling" or instinct.	The primary basis for decisions shifts to facts and systems.

(Schmidt, 1993, p. 11)

Two elements of TQM are its customer driven philosophy and the empowerment of the employee to effect change (Schmidt, 1993). High quality customer service requires the employee to be empowered to make immediate decisions for the customer at the moment of contact, also known as the "moment of truth" (Carlzon, 1987).

Phoenix, Arizona, Fire Chief Alan Burnacini describes the concept of doing what is needed for the customer as "WOW!" service. Brunacini goes on to describe how to add value to the normal customer service provided when the fire department responds to an alarm by doing something extra for the customer at their time of need (Brunacini, 1996).

Customer service is described by Wallace as having four common elements that create the groundwork for quality customer service. Included in these elements are managing moments of truth, knowing and understanding customer needs and expectations, developing or revising systems and procedures to ensure they are customer friendly, and recognizing and treating employees as customers too (Wallace, 2000).

The Baldrige National Quality Program has identified criteria for performance excellence that is built on a set of core values and concepts that are similar to TQM. According to the Baldrige Program, these concepts are the behaviors of high performance organizations. The core values and concepts are visionary leadership, organizational and personal learning, valuing employees and partners, agility or flexibility in process, managing for innovation, management

by fact, public responsibility and citizenship, focus on results and creating value, and a systems perspective (Baldrige National Quality Program, 2000).

Fire Service Experience

In Oregon, Clackamas County Fire District No. 1 (CCFD) has some experience with TQM. CCFD Chief Randy Bruegman is co-editor of *Exceeding Customer Expectations: Quality Concepts for the Fire Service* (1999) and author of 31 other published works of fire service interest and management. Under Chief Bruegman's leadership, CCFD has been working for several years to implement elements of TQM as listed in his book.

Supplier relationships have been created and sustained between CCFD and private businesses. One of these relationships with a fire apparatus manufacturer has developed a new leasing process for ten pieces of fire apparatus. Another is the outsourcing of the department's logistics function to a private company.

The creation of a number of functional groups and committees within CCFD to advise management on various subjects has facilitated employee involvement. In order to facilitate buy-in by their employees, Bruegman has chosen to utilize traditional fire service terminology to name teams and processes instead of industrial language that includes words like quality.

Currently, CCFD is involved in the creation of performance measures and benchmarks to quantify progress, and personnel are coached and evaluated for progress utilizing a combination of performance reviews and 360-degree feedback. In addition, the entire organization is involved in goal setting, action planning, and annual work plans.

Chief Bruegman also stated that the process of implementation was slow and not complete. He believes that more progress could be made with the help of a facilitator or quality manager, but his Board of Directors will not support an expenditure of this nature.

Finally, Chief Bruegman suggests going through the self-assessment process for accreditation by The Commission on Fire Accreditation International, which focuses on quality management (R. Bruegman, personal communication, January 20, 2001).

The award winning Sarasota County Fire Department (SCFD) in Florida is an example of an organization that has successfully implemented a quality improvement program and team problem solving. The key to SCFD's award winning success has been the implementation of a customer feedback system that is used to make changes and create programs that have a positive impact on future customers needs (Taigman, 1998).

An important aspect of SCFD's program is the commitment of the entire work force starting at the Chief level and down throughout the entire organization to actively work toward the quality improvement process. Consequently, SCFD has established performance indicators to measure progress, has focused training on learning styles, and created committees that focus on continuous improvement principles (Taigman, 1998).

An interesting set of observations regarding experience with TQM was found in successive applied research projects regarding the Salt Lake City Fire Department. Thomas J. Tallon and Jim Hansen wrote the research projects for the NFA's Executive Fire Officer Program. In two of three projects, TQM is identified as a worthwhile management process for managing change and improving the organization (Tallon, 1996; Hansen, 1998). However, in the latest research project, TQM was described as a failure (Hansen, 2000).

The applied research project by Tallon focused on the existing problems within the organization and the application of TQM to resolve those problems. In addition, Tallon recognized that a cultural change needed to take place and such a change could take years (Tallon, 1996). Hansen evaluated the success of TQM tools on the divisional level in the organization with a focus on the planning process. Hansen's research resulted in a recommendation to utilize the process in other divisions of the department (Hansen, 1998).

In Hansen's latest research project, the top executives of the city and the fire department who initiated TQM have been forced to either retire or have been fired, and there is a general perception of failure. This failure is described as a possible misapplication of TQM when some of the steps in the process were neglected. However, Hansen also concluded that elements of TQM remained a part of the organization's culture and another management model might be

successful (Hansen, 2000).

A successful experience with TQM was found in successive Executive Fire Officer Program research projects by Larry Nelson of the Grand Island Fire Department (GIFD), Nebraska. According to Nelson, GIFD is gradually changing the organization to a customer service focus. Nelson acknowledges that the rank-in-file has not fully bought off on all of the customer service principles. Consequently, he recommends further training, a greater internal customer focus, and additional study to identify the issues that are affecting morale (Nelson, 1998 & 1999).

PROCEDURES

Research Methodology

The researcher used the evaluative research method to investigate the elements of TQM and their applicability to GFES. A literature review was conducted with a focus on the elements of TQM and the latest fire service experience with TQM. Three interviews were conducted and the results of two previous surveys were utilized.

Literature Review

The researcher reviewed trade journals, applied research projects, technical reports, and books pertaining to TQM and customer service. First, the researcher conducted a review of the available literature and research on TQM from a public sector and fire service perspective. This research utilized the NFA's Learning Resource Center and the World Wide Web. Second, the researcher conducted a review of the elements of TQM from the private business and industrial perspective. This research was conducted at the Multnomah County Library in Portland, Oregon, and on the World Wide Web.

Surveys

The researcher utilized the results of two surveys. The first survey was conducted at the

NFA among students participating in resident courses. The survey was developed and administered solely by the researcher as part of a class/team assignment of the Executive Development class. A survey instrument was written and distributed to all of the classes (Appendix B). The instructors were asked to administer the survey sometime during the class. Of 148 surveys distributed, 136 were returned, a 92% return rate.

The second survey (Appendix C) was conducted in April 2000 at GFES as part of a final project for upper division course work in personnel management at Western Oregon University as a part of the Western Fire Service Administrator's Institute. The original objective of the survey was to determine the organizational culture of GFES as it pertains to two specific management theories. The organization has made no attempt to change its culture or management style since the results were compiled. Therefore, the researcher believes the results of the sample are still valid.

The GFES survey was adapted from an organizational culture survey that compares traditional management theory to participatory management theory (Mondy, 1999). The survey was sent via interoffice mail to all GFES staff. Of 98 surveys distributed, 40 were returned representing the opinion of 41% of the department. All of the surveys were evaluated collectively and all responses were included regardless of the individual's level in the organization.

The researcher did not analyze questions 10, 14, 15, 19, 24, and 29. Question 10 required the respondents to choose from nested multiple answers that caused many of them to mark two conflicting answers. Questions 14, 19, and 24 were not well written and proved confusing to the respondents. Questions 15 and 29 were specific to the organization and not written to determine the organizational or management culture.

In both surveys, it was assumed that the respondents would provide truthful answers and would understand the concepts being probed. It was recognized by the researcher that the sample size of the NFA survey was limited, and therefore, only representative of the feelings of the sample and not representative of the whole fire service population.

RESULTS

Answers to Research Questions

Research Question 1.

TQM is a team management process that utilizes the talents and capabilities of both labor and management to continually improve quality and productivity (Jablonski, 1991). The researcher found that Dr. Edward Deming's list of management principles best describes the elements of TQM (Appendix D).

In addition to Deming's list of management principles, the researcher found that there are several notable elements that should be mentioned. They are customer satisfaction, employee empowerment, and management by fact. Customer satisfaction is surveyed and measured both internally and externally to the organization and used as a basis for making improvements in the organization (Cohen, 1993). Employee empowerment allows the worker to have the greatest impact at their level or for the customer at the moment of contact (Brunacini, 1996). Management by fact focuses on the accumulation of data from which decisions are made. There are three types of data utilized for decision-making: hard data from statistical processes, soft data from anecdotal or observed sources, and experiential data from experience or education (Schmidt, 1993).

Research Question 2.

The fire service experience with TQM is varied. From the perspective of Chief Bruegman, implementation and progress toward a TQM organization is and should be slow and careful. With patience and gradual implementation, CCFD has gradually gained the confidence and trust of its members (R. Bruegman, personal communication, January 20, 2001). However, in the Salt Lake City Fire Department, TQM was implemented but, certain elements were ignored and it consequently failed (Hansen, 2000).

The customer service element of TQM has been successful in a number of fire

departments. Grand Island, Nebraska, has implemented a modestly successful program and has acknowledged that there is additional work to be done that includes additional training and improved communication (Nelson, 1999). The Phoenix Fire Department is a well-known successful customer service organization that focuses on internal and external customer relationships (Brunacini, 1996).

The researcher obtained additional insight regarding TQM during the July 2000 Executive Development class at the NFA. The researcher conducted a simple non-scientific survey (Appendix B) to determine the level of experience or interest in TQM. Of 148 surveys distributed, 136 were returned, a 92% return rate. While this sample is not representative of the fire service as a whole, it is interesting nonetheless.

Of the 139 respondents to the NFA survey, 26% indicated that their department utilized a TQM process. If the researcher were to make the assumption that the majority of personnel attending the NFA were from progressive departments, then the conclusion could be drawn that the actual number of departments utilizing TQM is somewhat smaller than 26%. Following that same logic, the number of departments that are not utilizing TQM is somewhat greater than 73%. The percent of departments that will be implementing TQM in the future is relatively small (8%), and following the same logic expressed previously, the actual number is probably somewhat smaller.

Research Question 3.

An earlier survey instrument was reevaluated for its application to the elements of TQM. The survey was sent to all 98 staff members of GFES and yielded 40 responses, representing 41% of the department (Appendix C).

The researcher evaluated the survey globally as well as individual topic areas that are of importance to TQM. The overall results are the respondent's opinion of the organization's management and their participation in that management. TQM is a collaborative form of management that encourages input and participation from employees throughout the organization

(Jablonski, 1991). The overall survey results (Table 2) indicate that the respondents felt that GFES is about half way between a traditional and participatory organization.

Table 2. Overall Results	Total Responses			
Total answers in each category:	117	323	338	139
Percent of total Responses:	13%	35%	37%	15%
Management Style: Traditional <-----> Participatory				

Training, or creating a learning organization, is an important element of TQM (Schmidt, 1993). The survey asked questions about the respondent's preparation for their current position and their supervisor's view of training. The respondents indicated that training is considered important to the respondents and their supervisors, but that they could still be better prepared for what they do (Table 3).

Table 3. Training	Question		Responses		
	1	0	9	18	13
	2	0	6	23	11
	3	3	16	2	19
Total answers in Training Category:	3	31	43	43	
Percent of total answers:	3%	26%	36%	36%	
Traditional <-----> Participatory					

The survey's leadership area probed the relationship between supervisors and subordinates. The questions asked the employee about the confidence held in subordinates, communication about the job, and accountability. The TQM aspect of the supervisor-

subordinate relationship is focused on valuing the subordinate and what they think (Schmidt, 1993).

Overall, the respondents felt fairly positive about the organization's leadership (Table 4). However, subordinates felt that their supervisors do not have a clear grasp of the problems faced by them (Table 4, Question 7). In addition, subordinates felt relatively free to talk to their superiors about their job (Table 4, Question 5).

Table 4. Leadership	Question		Responses			
	4	1	6	30	3	
	5	1	5	16	18	
	6	3	15	18	4	
	7	3	22	12	3	
	8	4	7	16	13	
	9	2	13	21	4	
Total answers in Leadership Category:	14	68	113	45		
Percent of total answers:	6%	28%	47%	19%		
Traditional <-----> Participatory						

The communication section of the survey asked the respondents to give their opinion regarding the flow of information. Improvements in a TQM organization require communication to and from all levels of the organization (Cohen, 1993).

The communication section of the survey tried to identify the organization's communication patterns. The respondents believe that most communication is downward (Table 5, Question 12) and regarded with caution (Table 5, Question 13).

Table 5. Communication	Question		Responses		
	11	5	18	15	2
	12	4	21	7	8
	13	3	7	24	5
Total answers in Communication Category:	12	46	46	15	
Percent of total answers:	10%	39%	39%	13%	
	Traditional <-----> Participatory				

In the traditionally managed organization, the managers of the organization retain decision-making (Schmidt, 1993). In a customer service organization, employees are empowered to make decisions and contribute to decision-making at all levels of the organization (Brunacini, 1996). The decisions section of the survey asked the respondent to give their opinion regarding the level where decisions were made.

In the opinion of the respondents, there is technical knowledge at most levels of the organization (Table 6, Question 17), but GFES does not empower its employees to make decisions at all levels (Table 6, Question 16, 18).

Table 6. Decisions	Question		Responses		
	16	15	16	7	2
	17	2	16	20	2
	18	1	23	14	2
	20	6	14	12	8
Total answers in Decision Category:	24	69	53	14	
Percent of total answers:	15%	43%	33%	9%	

Traditional <-----> Participatory

The intent of the mission and goal's section of the survey was to determine if the employees knew what the mission and goals of the department are and how they were established. A TQM organization will utilize a team effort to establish its mission and goals, and communicate those goals throughout the organization (Tenner, 1992).

According to the survey, the GFES mission and goals were of little value to the respondents (Table 7). More specifically, most respondents did not have an impact on the creation of the organizations mission and goals and they were not the basis for the decisions they made (Table 7, Questions 21, 22).

Table 7. Mission/Goals	Question		Responses			
	21	6	20	11	2	
	22	15	16	8	1	
	23	9	11	11	9	
Total answers in Mission/Goals Category:	30	47	30	12		
Percent of total answers:	25%	39%	25%	10%		
Traditional <-----> Participatory						

The last section of the survey is organization, which was written to probe the organization's commitment to teamwork. An important aspect of TQM is its focus on teamwork to solve problems and continuously improve (Schmidt, 1993).

According to the respondents, the organization was more formal than humanistic or team oriented (Table 8, Question 25). The respondents saw individual agendas as having a significant influence over the organization instead of teamwork (Table 8, Question 27). In addition, there

was a fully functioning informal organization operating within the formal one (Table 8, Question 26, 28).

Table 8. Organization	Question	Responses			
	25	8	18	12	1
	26	3	13	23	1
	27	18	13	6	3
	28	5	18	12	5
Total answers in Organization Category	34	62	53	10	
Percent of total answers	21%	39%	33%	6%	
Traditional <-----> Participatory					

Research Question 4.

The researcher has identified four elements of TQM within GFES that are partly functional but need to be strengthened. These elements are training, decision-making based on fact, rewarding employees, and empowerment to provide high-level customer service (Schmidt, 1993).

Training is an important element of the GFES organization and is available on the job and externally to all employees. However, the training program is focused primarily on emergency medicine and firefighting skills with some attention paid to officer development, customer service, or teambuilding. In addition, there is no individual career development process.

GFES and the City of Gresham offer a reward program called Achieving and Celebrating Excellence (ACE). The ACE program rewards employees for customer service and teamwork as well as certain individual accomplishments. The Department Director recognizes the employee before the City Council.

A number of GFES personnel have been recognized for their efforts toward exceptional service. However, this recognition has not been well received by other members of the organization, evidenced by the lack of participation in the recognition ceremony. GFES' recognition of service and accomplishments is haphazard and sporadic and held in low regard by the employees.

Another element of TQM that is currently in place at GFES is community indicators. The Gresham Progress Board, a City Council committee chaired by Mayor Charles Becker, develops community indicators. The community indicators consist of benchmarks, performance measures, and targets, and are adopted by the City Council (C. Becker, et al., Gresham Progress Board Report: Community Indicators for Fire and Emergency Services, October 5, 1999).

The performance measures adopted by the Progress Board compare GFES against other jurisdictions of similar size. These measures and targets are supposed to be used to determine the level of service provided to the community. Budget requests are tied to the indicators and the progress made toward achieving the adopted targets.

The community indicators focus on response times, total fire loss, firefighters per 1000 population, cardiac save rate, and injury prevention. There is no measure of internal or external customer service or satisfaction.

The last element of TQM that exists, but needs strengthening, is employee empowerment for high-level customer service. Over the past two years, employees have been informally encouraged to provide a level of customer service that is beyond the normal service that is provided when they respond to incidents. However, there is anecdotal evidence that some officers and firefighters are fearful of mistakes and possible discipline for doing something beyond the normal response to incidents.

Research Question 5.

In addition to the elements of TQM already in place, a focus on customer service is an element of TQM that should be added. The Gresham City Council has established a goal to

“Always provide quality customer service” (Gresham City Council, 1998). Therefore, the element of focusing on customer satisfaction is the most logical part of TQM that would be useful for the management of GFES.

In order to focus on customer satisfaction, the element of decision-making based on facts should be utilized as well. This element requires that data be gathered regarding the GFES impact on the customer.

In a TQM organization, it is recognized that employees at all levels of the organization have an interest in improving the organization (Schmidt, 1993). However, there is currently no formal process for involving or soliciting input from all levels of the organization.

DISCUSSION

TQM is a successful management process in a number of organizations, both public and private (Cohen, 1993). During the literature review, it became apparent to the researcher that authors and researchers have combined the major elements of TQM into general principles with each author taking a different twist on how the elements are combined to create a TQM organization. After examining the various general principles, the researcher has concluded that Deming’s 14 Management Principles (Appendix D) best represents the elements of TQM. However, Deming’s 14 Principles do not focus on the customers needs as the driving force behind continuous improvement. Therefore, the researcher has selected the principles that were combined by Schmidt (1993, p. 4) into the “Basic Concepts of TQM” (Appendix E) to best address the need for a customer service focus.

According to Bruegman, the implementation of the elements of TQM is a slow process that may take years to achieve. Clackamas County Fire District No. 1, where Bruegman is Chief, has not fully adopted all of the elements of TQM but has successfully implemented many that have been valuable to the organization (R. Bruegman, personal communication, January 20, 2001). Conversely, there have been significant problems with TQM in the Salt Lake City Fire Department and TQM is now considered a bad word in that organization (Hansen, 2000).

However, the researcher can find no apparent reason to not implement selected TQM elements at GFES as long as care is taken to communicate with and involve members at all levels of the organization.

According to the respondents in the GFES survey, the management and organizational culture of GFES is not far from that of a TQM organization (Table 2). It may be possible to build on the current culture to make further progress toward a participatory management style. However, the respondents also indicated that there is a lack of teamwork and a focus on personal agendas (Table 8). In light of this information, the researcher has concluded that the organization needs to make an effort to involve a wider group of members in the decision-making process and communicate the decision process to the entire organization.

The researcher identified a number of TQM elements that could be implemented or strengthened to manage GFES. These elements were training, rewarding employees, factual decision-making, and empowerment for a higher level of customer service.

Currently, GFES provides training that is focused at the basic skills level. The learning element of TQM focuses beyond basic skills to core competencies and creates an environment where it is okay to make mistakes and learn from those mistakes (Schmidt, 1993, p. 121).

The reward element of TQM provides recognition for the work of teams (Schmidt, 1993, p. 105). The City of Gresham ACE awards system rewards employees for excellent customer service and teamwork. However, work needs to be done to legitimize the program for GFES employees. In addition, a recognition program needs to be developed that celebrates personal achievement such as promotion, training, and longevity.

GFES currently measures its performance based on a set of indicators that were established by the Gresham Progress Board, a City Council Committee. However there is no measure of internal or external customer service. Based on the Council Goal to “always provide quality customer service” (Gresham City Council, 1998), an effort needs to be made to identify GFES internal and external customers and begin measuring the customer’s satisfaction.

A cornerstone of customer service is the empowerment of the employee to improve

customer service at the point of contact with the customer (Brunacini, 1996). GFES employees have been encouraged to provide customer service that is of a higher level than the service that is provided when they respond. However, no formal training or set of expectations is in place to provide guidance for the employee. A model of this type of customer service is demonstrated in Chief Alan Brunacini's book *Essentials of Fire Department Customer Service* (1996) that could be utilized as a guide for implementation.

RECOMMENDATIONS

Modern management process is participatory and focuses on the employee as an asset to the organization. The TQM process is a continuously improving participatory management process that celebrates the employee's involvement in the decision-making process. Therefore, it is important that the GFES management begin to include elements of TQM and its employees in its management process.

In addition, it is important to respond to the needs of the community and its elected officials. Therefore it is imperative that GFES take a customer service approach to its management.

Based on the research and findings, the researcher recommends the following:

1. Increase participatory management by including personnel from all levels of the organization in the decision making process.
2. Adopt a customer service focus based on the model described in Chief Alan Brunacini's book *Essentials of Fire Department Customer Service* (1996).
3. Add a core skills and competencies element to the current training program and begin to focus on personal development.
4. Create a department wide committee to research how to strengthen and improve the employee recognition program.
5. Create a process to measure internal and external customer satisfaction.
6. Perform additional research on implementing a full TQM program.

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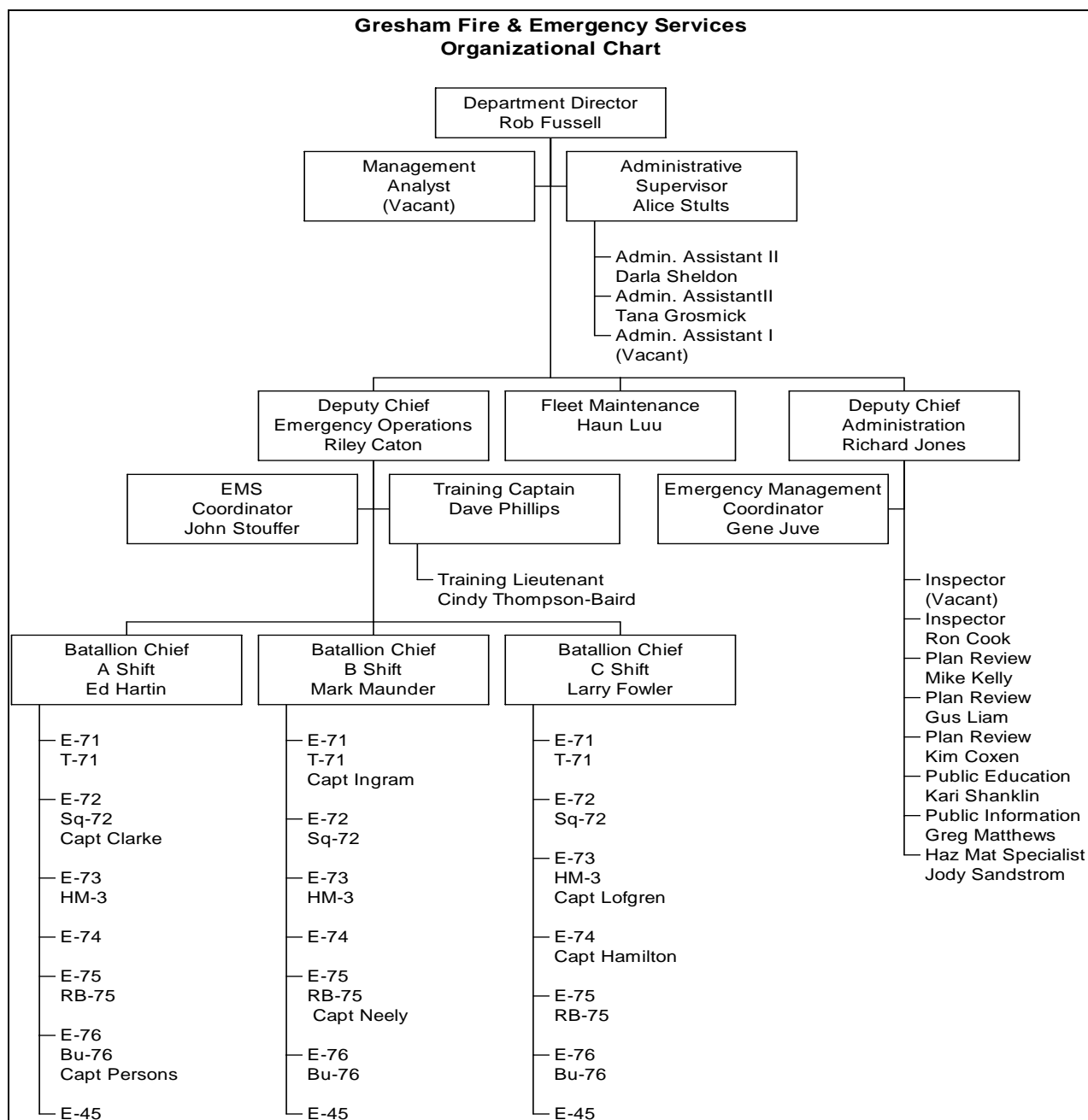
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APPENDIX A (Gresham Fire Organizational Chart)



APPENDIX B (NFA Total Quality Management Survey)

Executive Development – Room J 134

TOTAL QUALITY MANAGEMENT SURVEY

Please respond TODAY, we will pick it up from your instructor this afternoon.

Number of personnel: Career _____ Volunteer _____

1. Does your department use the Total Quality Management practice?

Yes _____ (Skip question 2)

No _____ (Please complete question 2)

2. Will you be implementing TQM in the future?

Yes _____ No _____

3. If you are a city, is TQM a citywide system or used in just the fire department?

Fire Department alone _____ Citywide _____

4. When was TQM implemented? _____

5. Was specialized training needed to implement TQM?

6. Was a consultant utilized for implementation? Yes _____ No _____

7. Have there been any problems due to TQM? Yes _____ No _____ (If Yes, please elaborate on the back)

8. What success can you contribute to TQM?

APPENDIX B

TOTAL QUALITY MANAGEMENT SURVEY
OF NATIONAL FIRE ACADEMY STUDENTS

RESULTS

Number of surveys distributed 148
Number of surveys returned 139 94%

1. Does your department use the Total Quality Management practice?

Yes: 36 26%
No: 101 73%
No Answer: 2 1%

2. Will you be implementing TQM in the future?

Yes: 8 8%
No: 83 81%
No Answer: 11 11%

3. If you are a city, is TQM a citywide system or used in just the fire department?

Fire Dept only: 10
Citywide: 22
No Answer: 4

4. When was TQM implemented? 1990-92: 8 93-95: 12 96-99: 10 No Answer 6

5. Was specialized training needed to implement TQM?

Yes: 27
No: 4
No Answer: 5

6. Was a consultant utilized for implementation?

Yes: 23
No: 11
No Answer: 2

7. Have there been any problems due to TQM?

Yes: 16
No: 17
No Answer: 3

8. What success can you contribute to TQM?

APPENDIX C (Organizational/Management Survey)

MEMORANDUM - GRESHAM FIRE & EMERGENCY SERVICES

To: All Personnel

From: Riley Caton

Date: April 22, 2000

Re: Organizational/Management Survey - A request for your observations.

The attached survey is a request for voluntary and anonymous information regarding our organizational/management culture. I am doing this survey as a part of my final project for an institute class, but I am also curious about how all of us view our organization. I will publish the results and I hope that it can also be used as a step toward better understanding and making improvements in our organization.

INSTRUCTIONS

This is an internal department survey and your answers should not be reflective of citywide goals or management. Some individuals may feel as though they have more than one supervisor. If you are confused about supervision please give the answer that best describes your supervision from a department wide perspective. In addition, this survey is only relative to day-to-day operations, not emergency management.

I used some generic terms in this questionnaire that need some explanation. Please do not be offended by my choice of words. Here are some definitions:

Top and middle management: Top management is the chiefs. Middle management includes the chiefs and captains.

Supervisors: Any officer or supervisor. (Not chiefs)

Superior and subordinate: These terms are generic and reflect any supervisory relationship. This could be firefighter/lieutenant, AAll/AAlll, or deputy fire marshal/fire marshal.

Your level in our organization (please circle): Firefighter/Staff Supervisor Management

Please circle the answer that best agrees with your opinion.

Training	1. How well prepared (trained) were you for your position?	I felt totally unprepared	I was minimally prepared	I could have used more preparation	I was completely comfortable
	2. How well prepared are you now?	I have little confidence	I am functional	I do my job well	I am quite well qualified
	3. How does your superior view training?	Necessary evil	Needs to be done	Only available to certain people	As a priority
LEADERSHIP	4. How much confidence is shown in subordinates?	None	Minimal	Substantial	Complete
	5. How free do you feel to talk to superiors about your job?	Not at all	Not very	Rather	Fully
	6. Are subordinates' ideas sought and used?	Seldom	Sometimes	Usually	Always
	7. How well do superiors know problems faced by subordinates?	Very little	Some knowledge	Quite well	Very well
	8. How much control is held over subordinates?	A great deal	Some freedom but watched closely	Free to give input	Encouraged to interact and participate
	9. Are personnel held accountable for their actions?	Rarely	Sometimes but not consistently	Fairly often	Always consistent and fair
	10. Is predominant use made of (1) fear, (2) threats, (3) punishment, (4) rewards, or (5) involvement?	1, 2, 3, Occasionally 4	4, Some 3	4, Some 3 and 5	5, 4 based on group-set goals

APPENDIX C

COMMUNICATION	11. How much communication is aimed at achieving our objectives?	Very little	Little	Quite a bit	A great deal
	12. What is the direction of information flow?	Downward	Mostly downward	Down and up	Down, up and sideways
	13. How is downward communication accepted?	With suspicion	Sometimes with suspicion	With caution	With an open mind
	14. How accurate is upward communication accepted?	Not well	Accepted but ignored	Censored for the boss	Accurate
	15. Is email an effective communications tool?	Email should not be used	Email is a necessary evil	Some email is okay the rest should be verbal	Email mixed with face to face communication
DECISIONS	16. At what level are decisions formally made?	Mostly at the top	Policy at the top, some delegation	Broad policy at the top, more delegation	Throughout but well integrated
	17. What is the origin of technical and professional knowledge used in decision-making?	Top management	Upper and middle managers	To a certain extent throughout the organization	To a great extent throughout the organization
	18. Are subordinates involved in decisions related to their work?	Not at all	Occasionally consulted	Generally consulted	Fully involved
	19. What is collected computer data used for?	To punish	Nothing, it is useless	For some decision-making	As a decision-making tool
	20. How does the decision-making process contribute to motivation?	Nothing, often weakens it	Relatively little	Some contribution	Substantial contribution
MISSION / GOALS	21. How valuable is the organization's mission statement?	Unknown	Known, but of little value	Of some value to decision-making	The statement that drives our decisions
	22. How are the organization's goals established?	From top management	From top, some comment invited	After discussion by management	By group action
	23. Where is responsibility felt for achieving the organization's goals?	Mostly at the top	Top and middle	Fairly general	All levels
	24. How much resistance to these goals is present?	Strong resistance	Moderate resistance	Some resistance at times	None, goals are quite widely shared

The following section is a series of questions regarding organizational structure. It is widely recognized that every organization has a formal and informal structure. Our organizational chart describes the formal structure. It sets patterns of authority, is the basic framework of formal relationships, and the structure that coordinates department positions. The informal structure is described as "the way it really works," unofficial patterns of interaction, and is the structure that is said to coordinate people.

ORGANIZATION	25. How well does the formal organization work?	Not well, very rigid and formal	Rigid and formal but accessible	Accessible, humanistic	Overall team effort
	26. Is there informal resistance to the formal organization?	Always, goals are different, opposed	Usually, some goals are the same	Sometimes, but goals are the same	No - same goals as formal one
	27. How much does individual influence effect the organization?	A great deal with individual agendas	Somewhat, but with the organization's interests	Influence is used to advance the organization's goals	No effect, individual influence is set aside
	28. How often do you use the informal structure for direction or assistance?	Often, it is the only way to get help	Sometimes, when I need immediate help	Not very often, I get the help I need	I am mentored and helped by my supervisor
	29. How do you view the upcoming reorganization?	Don't care, can't see how it will help	I'm sure it's a step in the right direction	It's okay	Will help stabilize the organization

Your candor is appreciated. Please return this form to Riley Caton by April 29th. Additional comments are invited:

APPENDIX C

Analysis of GFES Organizational/Management Survey

		Number of Surveys					40
Organizational Area	Quest.	Traditional <-----> Participatory					
Training	1	0	9	18	13	40	
	2	0	6	23	11	40	
	3	3	16	2	19	40	
Leadership	4	1	6	30	3	40	
	5	1	5	16	18	40	
	6	3	15	18	4	40	
	7	3	22	12	3	40	
	8	4	7	16	13	40	
	9	2	13	21	4	40	
Communication	10					0	
	11	5	18	15	2	40	
	12	4	21	7	8	40	
	13	3	7	24	5	39	
	14					0	
Decisions	15					0	
	16	15	16	7	2	40	
	17	2	16	20	2	40	
	18	1	23	14	2	40	
	19					0	
Mission/Goals	20	6	14	12	8	40	
	21	6	20	11	2	39	
	22	15	16	8	1	40	
	23	9	11	11	9	40	
Organization	24					0	
	25	8	18	12	1	39	
	26	3	13	23	1	40	
	27	18	13	6	3	40	
	28	5	18	12	5	40	
Survey Grand Totals	29					0	
	Traditional <-----> Participatory						
		117	323	338	139	917	
		13%	35%	37%	15%	100%	

Organizational Area		Traditional <-----> Participatory			
Training	1	0	9	18	13
	2	0	6	23	11
	3	3	16	2	19
		3	31	43	43
		3%	26%	36%	36%
		Traditional <-----> Participatory			
Leadership	4	1	6	30	3
	5	1	5	16	18
	6	3	15	18	4
	7	3	22	12	3
	8	4	7	16	13
	9	2	13	21	4
		14	68	113	45
		6%	28%	47%	19%
		Traditional <-----> Participatory			
Communication	11	5	18	15	2
	12	4	21	7	8
	13	3	7	24	5
		12	46	46	15
		10%	39%	39%	13%
		Traditional <-----> Participatory			
Decisions	16	15	16	7	2
	17	2	16	20	2
	18	1	23	14	2
	20	6	14	12	8
		24	69	53	14
		15%	43%	33%	9%
		Traditional <-----> Participatory			
Mission/Goals	21	6	20	11	2
	22	15	16	8	1
	23	9	11	11	9
		30	47	30	12
		25%	39%	25%	10%
		Traditional <-----> Participatory			
Organization	25	8	18	12	1
	26	3	13	23	1
	27	18	13	6	3
	28	5	18	12	5
	28	34	62	53	10
		21%	39%	33%	6%
		Traditional <-----> Participatory			

APPENDIX D (Deming's Management Principles)

Deming's Management Principles

14 Points

1. Create and publish to all employees a statement of the aims and purposes of the company or other organization. The management must demonstrate constantly their commitment to this statement.
2. Learn the new philosophy, top management and everybody.
3. Understand the purpose of inspection, for improvement of processes and reduction of cost.
4. End the practice of awarding business on the basis of price tag alone.
5. Improve constantly and forever the system of production and service.
6. Institute training (for skills).
7. Teach and institute leadership.
8. Drive out fear. Create trust. Create a climate for innovation.
9. Optimize toward the aims and purposes of the company the efforts of teams, groups, staff areas, too.
10. Eliminate exhortations for the workforce.
11. (a) Eliminate numerical quotas for production. Instead, learn and institute methods for improvement. (b) Eliminate management by objectives. Instead, learn capabilities of processes, and how to improve them.
12. Remove barriers that rob people of pride of workmanship.
13. Encourage education and self-improvement for everyone.
14. Take action to accomplish the transformation.

7 Deadly Diseases

1. Lack of constancy of purpose.
2. Emphasis on short-term profits.
3. Evaluation of performance, merit rating, or annual review.
4. Mobility of management.
5. Management by use of visible figures.
6. Excessive medical costs.
7. Excessive costs of liability.

(Tenner, 1992, p. 18)

APPENDIX E (Concepts of TQM)

Basic Concepts of TQM

- Organizations are made up of a complex system of customers and suppliers, with every individual executive, manager, and worker functioning as both a supplier and a customer.
- Quality – meeting the customer's requirements – is the priority goal and is presumed to be the key to organizational survival and growth.
- Continuous improvement is the guiding principle. This goes for the product or service you produce and for your own competence on the job; TQM organizations are learning organizations and depend on their people becoming increasingly competent and creative.
- Teams and groups are primary vehicles for planning and problem solving.
- Developing relationships of openness and trust among members of the organization at all levels is the key condition for success.

(Schmidt, 1993, p. 4)